UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BAKERSFIELD FIELD OFFICE

ENVIRONMENTAL ASSESSMENT

Sespe Powell Wells No. 3 and No. 4
CA-160-07-008
April 2010

Table of Contents - Sepse Powell Wells No. 3 & No. 4

I. Introduction and Background Information

Background

The Bureau of Land Management (BLM) has received two applications for permit to drill (APDs) from Seneca Resources to access oil and gas resources for which they currently hold an oil and gas lease from the BLM , CARI 2298 in the Sespe oilfield located in Section 34, T. 5 N., R. 19 W., SBB&M, Ventura County, California .

The Sespe oilfield was discovered in the late 1880's and has been producing commercial quantities of oil and gas since that time. Currently, there are about 200 producing wells inside the Los Padres National Forest (LPF) boundary in the Sespe oilfield, about half of which are on National Forest System (NFS) lands and half on privately owned surface.

The proposed well sites are located on an existing well pad known as the Slide Pad (193' x 95') that contains 15 existing wells. The Slide Pad is located on privately owned land (surface and mineral estate) adjacent to the LPF and Hopper Mountain National Wildlife Refuge. The well pad and oil lease are both located within the boundaries of the Sespe Condor Sanctuary, which was established on January 16, 1951 by Public Land Order 695 (PLO 695). PLO 695 withdrew *public land* within the Condor Sanctuary boundary from appropriation under the public land laws, and reserved the area as a condor sanctuary under the jurisdiction of the Los Padres National Forest Service. Certain sections, including Section 34, were prohibited from surface use or invasion. Operations in other sections within the Condor Sanctuary were to remain one-half mile away from any nest that had been active within 3 years unless specific authorization was given by the Forest Service.

The existing **well pad** is located in the SE¼SW¼ of Section 34, inside the boundary of the Sespe Condor Sanctuary and is surrounded on two sides (north and east) by the Sespe Condor Sanctuary; however, it is not part of the Condor Sanctuary since it is private surface and private mineral estate.

The actual **oil lease** is located below NFS land surface inside the boundary of the Sespe Condor Sanctuary in the SW¼NE ¼ of Section 34. Because the NFS land surface above the oil lease is *public land* and part of the Sespe Condor Sanctuary, development on the surface directly above the oil lease is prohibited.

The BLM is responsible for reviewing applications and issuing leases for federal mineral estate within the National Forest. The BLM is preparing this environmental assessment to review these applications. A map of each of the proposed well location is attached to this EA.

General Information

LOCATION: Sespe Oil Field, Section 34, T. 5 N,, R. 19 W., SBB&M,

Ventura County, California

Environmental Assessment Number: CA-160-07-008

AFFECTED SURFACE AREA (public/private): Less than 1Private Acre

NEAR WILDERNESS or WSA? Yes

ACEC Name: None

II. Purpose of and Need for Action

Purpose and Need

The purpose for this action is to determine whether to approve two applications for permit to drill (APD) for the Powell Wells No. 3 and No. 4. The BLM needs to respond to these two APDs from Seneca Resources for accessing oil and gas resources for which they hold a federal oil and gas lease, CARI 2298.

Conformance with Applicable Land Use Plans

As described above, the lease is located under the Los Padres National Forest and, therefore, is subject to the direction in the LPF Land Management Plan approved in September 2005. This plan has been reviewed as required by 43 CFR 1610.5-3(a), and it was determined that the proposed action is consistent with the vision and desired condition in the land use plan to "facilitate production of energy resources while minimizing adverse impacts to surface and groundwater resources and protecting or enhancing ecosystem health and scenic values."

Relationship to Statutes, Regulations and Other Plans

Endangered Species Act of 1973. The proposed action is subject to compliance with the September 15, 2005 Biological Opinion and Conference Opinions on the Revised Land and Resource Management Plans for the Four Southern California National Forests, California (1-1-05-F-773) and the September 28, 2009 Biological Opinion for Two Drilling Sites on Well Pads in the Sespe Oil Field, Ventura County, California (2007-F-0264).

Public Land Order 695, January16, 1951, established the Sespe Condor Sanctuary. Public Land Order 695 (PLO 695) withdrew public land within the Condor Sanctuary boundary from appropriation under the public land laws, and reserved the area as a condor sanctuary under the jurisdiction of the Forest Service. Certain sections, including section 34, were prohibited from surface use or invasion, and operations in all areas within the sanctuary were to remain one-half mile away from any nest that had been active within 3 years.

To comply with PLO 695, the oil and gas lease issued on June 1, 1965 contained special lease stipulations that:

1. Prohibit surface use within the Condor Sanctuary, including the surface directly over the lease, but allow directional drilling from outside the Condor Sanctuary.

2. Prohibit activity associated with the lease within one-half mile of any condor nest known to have been active within three years unless a permit is obtained from the Forest Service.

Other Relevant Environmental Documents

This Environmental Assessment is tiered to Final Environmental Impact Statement, Volumes 1 & 2, Land Management Plans: Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest, September 2005

(USDA Forest Service 2005b), and the Final Environmental Impact Statement for Oil and Gas Leasing, Los Padres National Forest, July 2005 (USDA Forest Service 2005a).

The Final Environmental Impact Statement (FEIS) Volumes 1 & 2, Land Management Plans: Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest describes the purpose and need for actions, the range of management alternatives (including the selected alternative), and the analysis and disclosure of the environmental consequences of the alternatives. The analysis of cumulative effects analysis for biological diversity on pages 394 to 409 is incorporated by reference.

The Final Environmental Impact Statement for Oil and Gas Leasing, Los Padres National Forest (LPF Oil and Gas Leasing FEIS) identifies lands available for oil and gas leasing, specific lands for BLM to lease, and appropriate lease stipulations to avoid or mitigate impacts to other resources and the environment. The analysis of oil and gas leasing on the LPF, and specifically the Sespe oil field, in chapter 4; Appendix C: Oil and Gas Exploration, Development, and Production; and Appendix D: Reasonable Foreseeable Development Scenario are incorporated by reference.

III. Description of the Proposed Action and Alternatives

Alternative 1 - No Action

Under the No Action Alternative, BLM would not authorize the drilling of the Powell Wells No. 3 and 4. This would result in decreased production of federal subsurface minerals, but more importantly, it would be in conflict with the rights that were granted to the lessee under their federal oil and gas lease, CARI 2298. Those rights include the right to drill unless there is a jeopardy decision or other similar circumstance that cannot be mitigated.

It would also be in conflict with: 1. BLM's Energy and Mineral Policy of August 2008, which states that energy and mineral development can occur concurrently or sequentially with other resource uses, providing that appropriate stipulations or conditions of approval are incorporated into authorizations to prevent a jeopardy opinion, 2. The National Energy Policy Act of August 2005 by not meeting the needs of the country to promote goals to provide national energy security, and 3. Federal Oil and Gas Lease Regulation 43 CFR 3101.1-2, which give the lessee the right to use as much of the leased land as is necessary to drill for oil and gas, subject to lease stipulations attached to the original lease and other reasonable restrictions that are consistent with the lease rights granted.

Alternative 2 - Proposed Action

Seneca Resources proposes to drill two wells, Powell No. 3 and Powell No. 4, in the Sespe oil field, Ventura County, California. The proposed wells will be drilled on an existing pad, known as the Slide Pad that contains 15 existing wells. The wells would be located in Sec. 34, T. 5 N., R. 19 W., SBB&M, in Ventura County, California on private surface and directionally drilled to federal mineral estate. The existing wells are currently producing petroleum via pumping units tied into existing flowlines and electrical facilities. No expansion of the pad or flowlines would be necessary to drill the additional wells. Well

locations would be accessed using existing roads; therefore no new temporary or permanent roads would be constructed.

The two proposed wells will be directionally drilled to an approximate depth of 8,000 feet. The general drilling process from "spudding" to "logging" and testing the completed well is described in detail in Appendix C of the LPF Oil and Gas Leasing FEIS, pages C-10 to C-13 and is incorporated by reference.

Water for this proposed drilling project is transported by an existing surface pipeline. The water sources for the drilling operations are water wells owned and operated by Seneca Resources. These water wells are located approximately two miles from the drilling site. Water would be continually transported to the well site during operations. Although it will vary significantly from well to well, approximately 10,000 barrels of water may be required to drill and complete an oil or gas well to the depth of 8,000 feet.

Drilling operations are proposed to continue 24 hours a day, seven days a week. The crews usually work three eight-hour shifts or two 12-hour shifts a day. The greatest amount of human, vehicular, and equipment activity and accompanying noise, etc. would occur during the construction and drilling activities. Truck traffic would be generated by trucks hauling equipment, service companies delivering supplies and equipment and performing specialized work on the well, drilling crew shift changes, well treatment, and testing equipment, etc. Human activity and use of heavy construction and drilling equipment during operations would generate noise and visible activity.

Seneca Resources operates petroleum production facilities on both private and public lands within the Sespe oil field. As part of the Sespe Operators Group, Seneca Resources entered into a 1991 Memorandum of Understanding (MOU) between the U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service and the Sespe Operators Group regarding oil and gas operations in the area and protection of California condors. One of the conditions of the MOU was to minimize surface operations by locating multiple wells on single pads. Consistent with the MOU, the new wells will be drilled on a pad with 15 existing wells.

Seneca Resources also proposes to implement the following measures to minimize the potential for impacts to California condors, which incorporate the applicable minimization and avoidance measures contained on pages 6-8 of the February 23, 2005 *Biological Opinion on the Proposal to Lease Oil and Gas Resources within the Boundaries of the Los Padres National Forest, California* (1-8-04-F-32):

1. Prior to conducting work on-site, employees and contractors shall be made aware of the protected species, and how to avoid and minimize impacts to them. Special emphasis would be placed on keeping the well pad site free of "microtrash" and other hazards.
2. Direct contact with California condors shall be avoided.
3. All work areas shall be kept free of trash and debris. Particular attention shall be paid to "microtrash." All construction debris and trash (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) shall be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or prior to periods when workers are not present at the site.

4. All food items and associated trash shall be placed in covered containers. This would include small bits of trash and debris, such as soda can pull tabs, electrical connectors, broken glass, and pieces of rubber, plastic and metal.
5. All equipment and work-related materials (including loose wires, open containers or other supplies or materials) shall be contained in closed containers either in the work area or placed inside vehicles. Loose items (e.g., rags, hose, etc.) shall be stored within closed containers or enclosed in vehicles.
6. All hoses or cords that must be placed on the ground due to drilling operations that are outside of the primary work area (immediate vicinity of the drilling rig) shall be covered to prevent California condor access. Covering may take the form of burying or covering with heavy mats, planks, or grating that would preclude access by California condors.
7. All liquids shall be in closed, covered containers. Any spills of hydrocarbon/hazardous liquids shall not be left unattended until clean-up has been completed. No open drilling mud, water, oil or other liquid storage or retention structures will be allowed. All such structures will be required to have some sort of netting or other covering that precludes entry or other use by condors or other listed avian species.
8. Where practical, ethylene glycol based anti-freeze or other ethylene glycol based liquid substances will be avoided, and propylene glycol based antifreeze will be encouraged. Equipment or vehicles that use ethylene glycol based anti-freeze or other ethylene glycol based liquid substances shall be inspected daily for leaks. While at the site, areas below vehicles and equipment using ethylene glycol based substances will be checked for leaks and puddles. Standing fluid (i.e., a puddle of anti-freeze) shall be remediated (e.g., cleaned-up, absorbed, or covered) without unnecessary delay. Vehicles using ethylene glycol based substances will be inspected before and after field use for obvious leaks and puddles. Leaks will be repaired before the vehicle is allowed back into the Sespe Area. No changing of antifreeze of any type will be allowed within the oil and gas development area.
9. A not-to-exceed 20 mile-per-hour speed limit shall be implemented and enforced during all activities.
10. All construction equipment, staging areas, materials, and personnel shall be restricted to disturbed areas that are not habitat for listed species.
11. To prevent injury to wildlife, habitat degradation, erosion, and fires, driving off of disturbed areas without a pre-activity survey and implementation of appropriate measures is prohibited, except in the case of an emergency.
12. Firearms and pets are prohibited.
13. No feeding of wildlife shall be permitted.
14. The potential for human-caused wildfires should be minimized by use of shields, mats, or other fire-prevention methods when grinding or welding. Fire watch, including water, extinguishers, and shovels shall be available for fire suppression.

15. Approval from the USFWS will be obtained prior to 1) the use of any aircraft in the drilling, operation or monitoring of the wells, and 2) flaring of natural gas or other flammable gases or substances at the Slide Pad.
16. Any use (perching, landing) of a well site and its associated facilities by California condors shall be recorded and reported to Mr. Tim Alburger of Seneca Resources (661-399-4270, ext. 3544; or 661-619-9926), BLM (lisa_ashley@blm.gov, akuritsu@blm.gov), and the USFWS jesse_grantham@fws.gov).
17. Any take (harm, harassment, injury, killing, etc., or any attempt to engage in these activities) shall be reported to Mr. Tim Alburger of Seneca Resources (661-399-4270, ext. 3544; or 661-619-9926). Mr. Alburger shall immediately notify the BLM, USFWS, and CDFG as appropriate. The activity that caused the take to occur shall be ceased immediately.

Seneca has also agreed to complete well drilling operations by the end of September to minimize impacts to fledging condors. Drilling would be completed by October 1 unless conditions beyond Seneca's control, such as fire, floods or landslides, cause delays. The USFWS will be notified of any delays in project completion. Approximately 2-1/2 months are required to drill the wells.

To further discourage condor use, reduce potential hazards and address micro-trash at the four well pads frequented by condors, Seneca agreed to implement the following measures in a September 9, 2008 letter to BLM:

1. Seneca will have the field operator(s) check wells pads more closely for micro-trash, especially when they know the public has been at the site. Checks will be made during the daily rounds.
2. In addition, at least once per week, two laborers will make the rounds of all the upper well pad locations, including the four pads used by condors, to pick up any trash that has been left by the public over the weekend.
3. Seneca will coordinate with Forest Service, private landowners and other operators to close the existing gates at the Old Ranger Station and Maple Creek, and the new gate on the road near Holton 1.
4. Seneca will obtain permission from the private landowners and install "No Trespassing" signs along the road and at well pad locations on private land.
5. Barriers (such as welded wire fabric or hardware cloth) will be installed around well cellars and on secondary containment pans to prevent condor access.
6. Poly chemical lines will be replaced with stainless steel lines to preclude condors from obtaining and ingesting pieces of poly line.
7. Landing deterrents, such as Daddi Long Legs or porcupine wire, will be attached to the walking beams on pumping units.
8. Perimeter fence will be installed at the four well pads to discourage condor access.
9. Information signs regarding micro-trash will be posted.

10. Seneca will work with the USFWS to install electricity so that cameras can be installed, for example, at a nesting site.
11. Should a condor be identified at a well site, Seneca will notify USFWS.
12. If condor use patterns change and additional well sites become frequented by condors, Seneca and USFWS will mutually determine the mitigation measures to be implemented at the additional well sites. If the persistent use is detected during the nesting season, the measures will be implemented as soon as practical; otherwise measures will be implemented prior to the nest nesting season.

IV. Affected Environment

Location and Physical Description

The Sespe oilfield is located in the eastern portion of Ventura County, California. It lies in the lower foothills of the Transverse Range, approximately 30 miles east of Ventura and 10 miles north of Fillmore, within the Los Padres National Forest boundary, and adjacent to the Hopper Mountain National Wildlife Refuge. The proposed wells sites are located on Hopper Mountain. Hopper Mountain has moderately steep slopes, and elevations vary from 3,000 to 4,200 feet. The proposed well sites are surrounded on three sides by the Sespe Condor Sanctuary, and are within the Los Padres National Forest. They are not a part of either, however, the well pad is located on a parcel of privately owned land (surface) within the LPF boundary.

Air and Atmospheric Values

Air Quality

This section describes the existing air quality environment in the vicinity of the Project site. The general physical and regulatory air quality settings of the Project area are described in detail in the Ventura County Air Quality Management Plan (AQMP) and the Ventura County Air Quality Assessment Guidelines (October 2003). The AQMP was adopted in 1994, revised in 1995, 1997, and again in 2007. The current AQMP, adopted on May 13, 2008, outlines the strategy for attaining the federal ozone standard. These documents are herein incorporated by reference and are available for review at the Ventura County Air Pollution Control District (VCAPCD) offices. Information regarding air quality is also available online at the VCAPCD's web site (www.vcapcd.org). The following summarizes information from the AQMP and other pertinent materials.

Regulatory Setting

The federal and state governments have been empowered by the federal and state Clean Air Acts (CAA) to regulate the emissions of airborne pollutants and have established ambient air quality standards for the protection of public health. The United States Environmental Protection Agency (USEPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (ARB) is the state equivalent within

the California Environmental Protection Agency (CalEPA). Local air quality management is delegated by the ARB through county-level Air Pollution Control Districts (APCDs) and regional Air Quality Management Districts (AQMDs). The ARB has established state air quality standards and is responsible for control of mobile emission sources, while the local APCDs/AQMDs are responsible for enforcing standards and regulating stationary sources. The ARB has established 14 air basins statewide. The Project site is located in the SCCAB and is within the jurisdiction of the VCAPCD.

Air Quality Standards

The first comprehensive federal air pollution legislation was the Clean Air Act (CAA) of 1970. In 1977, the CAA was amended to require attainment plans for meeting the national health-based air quality standards "as expeditiously as practicable," but no later than December 31, 1982. However, the CAA permitted the USEPA to extend the attainment date of some ozone and carbon monoxide nonattainment areas.

Pursuant to the federal CAA, states have the right to establish and enforce their own air quality standards which are equal to or more stringent, but not less stringent, than federal standards. The California Clean Air Act (CCAA) was enacted on September 30, 1988, and became effective January 1, 1989. The purpose of the CCAA is to achieve the more stringent health-based state clean air standards at the earliest practicable date.

Under the respective Acts, National and California Ambient Air Quality Standards (NAAQS, CAAQS) have been separately established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), and lead (Pb). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Table AQ-1 lists the current ambient air quality standards.

Table AQ-1. Current (2010) Ambient Air Quality Standards

Species Name	Averaging Time	California Standards		National Standards	
		ppm	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	180	--	--
	8-hour	0.07	137	0.075	147
Nitrogen Dioxide (NO_2)	1-hour	0.18	339	--	--
	Annual	0.03	57	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	--	--
	3-hour	--	--	0.50	1,308
	24-hour	0.04	105	0.14	365
	Annual	--	--	0.03	80
Carbon Monoxide (CO)	1-hour	20	10	35	40
	8-hour	9	23	9	10
	Lake Tahoe (8-hr)	6	7	--	--
Particulates (PM_{10})	24-hour	50	--	--	150
	Annual	20	--	--	--
Particulates ($PM_{2.5}$)	24-hour	No Separate State Standard		--	35
	Annual	--	12	--	15
Lead (Pb)	30-day	--	1.5	--	--
	90-day	--	--	--	1.5
Sulfates (as SO_4)	24-hour	--	25	--	--
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	--	--
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	--	--

ppm = parts per million
µg/m3 = micrograms per cubic meter
Source: California Air Resources Board, 2010

In 1997, the USEPA adopted stricter NAAQS for ozone and particulate matter. The USEPA replaced the existing 1-hour ozone standard with a new 8-hour averaging time and lowered the concentration level from 0.12 to 0.07 parts per million (ppm). However, while the 8-hour ozone standard has been implemented, the U.S. Court of Appeals prohibited the USEPA from enforcing the new PM_{10} standard in May 1999. The Court removed the new PM_{10} standard, and the previous standard of 150 micrograms per cubic meter ($\mu g/m^3$) for a 24-hour period continues to apply. The Court left in place the new annual $PM_{2.5}$ standard, which is set at 15 $\mu g/m^3$ spatially averaged across an area. The new 24-hour $PM_{2.5}$ standard is based upon the three-year average of the 98^{th} percentile of the 24-hour concentrations measured at a monitoring station.

Air Districts in California are required to monitor air pollutant levels to assure that NAAQS and CAAQS are met and, in the event that they are not, to develop strategies to meet these standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "nonattainment". The air pollutants of most concern in Ventura County are ozone and particulate matter. Ventura County is an attainment area for all standards presented in Table AQ-1, except the following:

- Ozone (state 1-hour and federal 8-hour): Nonattainment
- PM_{10} (state 24-hour and state annual average): Nonattainment
- $PM_{2.5}$ (federal 24-hour and state/federal annual average): Not designated

In addition to ozone and particulate matter, localized concentrations of CO, also known as CO "hotspots" may occur at heavily traveled roadways, particularly at intersections or other locations where the traffic is congested and vehicles idle for prolonged periods. CO concentrations exceeding the existing standard may occur at intersections that operate at a Level of Service (LOS) D or worse.

Under the 1990 CAA amendments, areas that did not meet the original federal 1-hour ozone standard were classified according to the severity of each area's respective ozone problem. The 1-hour classifications in ascending order were Marginal, Moderate, Serious, Severe, and Extreme. Marginal areas were closest to meeting the 1-hour ozone standard. Extreme areas had the worst air quality problems. Areas with severe ozone problems had progressively more stringent control requirements to meet under the CAA. An area's classification determined how long the area had to attain the ozone standard. Marginal areas had three years; Moderate areas had six years; Serious areas had nine years; Severe areas had either 15 or 17 years, depending on the magnitude of their ozone problem; and, Extreme areas had 20 years. The South Coast Air Basin (SCAB, greater Los Angeles) was the only area in the country designated as Extreme, thus requiring attainment by 2010. Ventura County (SCCAB) was a Severe area for ozone and originally had to attain the federal 1-hour ozone standard by 2005. Similar to the federal CAA, the CCAA also classifies areas according to pollution levels. Under the CCAA, Ventura County is a Severe ozone nonattainment area, and is a state PM_{10} nonattainment area. Further, District-wide air emissions must be reduced at least five percent (5%) per year (averaged over three years) for each nonattainment pollutant or its precursors.

With the replacement of the federal 1-hour with the new 8-hour ozone standard, the federal nonattainment designations changed to Marginal, Basic, Moderate, Serious, and Severe-17.

The USEPA has designated Ventura County's 8-hour ozone nonattainment status as Moderate. However, the District requested that USEPA reclassify Ventura County to a Serious 8-hour ozone nonattainment area, the next higher nonattainment classification. This means that Ventura County would be required to meet the federal 8-hour ozone standard by June 15, 2013, rather than June 15, 2010. The current AQMP indicates the strategy to achieve attainment for ozone by 2013.

Effects of Air Pollution

Air pollution is potentially hazardous to health, and can diminish the production and quality of many agricultural crops, reduce visibility, degrade soils materials, and damage vegetation. Human health effects are the key determinant in the establishment of the above listed primary air quality standards. The health and safety effects of air pollutants are described in detail in the 2003 Ventura County Air Quality Assessment Guidelines (Chapter 2). The most prevalent criteria pollutants and their potential health effects are described below.

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic compounds (ROC – sometimes referred to as reactive organic gases or ROG). Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of May and October. Ozone is a pungent, colorless toxic gas that can cause detrimental health effects including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, those with respiratory disorders, and people who exercise strenuously outdoors.

Nitrogen Dioxide

Nitrogen dioxide is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish brown gas with an odor similar to that of bleach. NO_2 participates in the photochemical reactions that result in ozone. The greatest source of NO, and subsequently NO_2, is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers. NO_2 and NO are referred to collectively as NO_X. NO_2 can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Researchers have identified harmful effects similar to those caused by ozone, with progressive changes over four hours of exposure causing impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons.

Suspended Particulates

Particulate matter refers to small, airborne particles that can be inhaled by humans and other animals. The two categories of particulate matter of greatest concern are PM_{10} and $PM_{2.5}$. PM_{10} is small particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates, and sulfates, and are a by-product of fuel combustion and wind erosion of soil and unpaved roads. Suspended particulates are also

created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with PM_{10} and $PM_{2.5}$ can be very different. PM_{10} generally comes from windblown dust, dust kicked up from mobile sources, and dust created by crushing, grinding, or abrading surfaces during grading operations or other means by which large particles are broken into smaller ones. $PM_{2.5}$ is generally associated with combustion processes and motor vehicle exhaust, especially from diesel engines. It can also be formed in the atmosphere as a secondary pollutant through chemical reactions.

Carbon Monoxide

Carbon monoxide is a local pollutant that is found in high concentrations only very near its source. The major source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Sulfur Dioxide

Sulfur dioxide is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM_{10}. Most of the SO_2 emitted into the atmosphere is from burning sulfur-containing fossil fuels by mobile sources such as marine vessels and farm equipment, and stationary fuel combustion. SO_2 irritates the mucous membranes of the eyes and nose, and may also affect the mouth, trachea, and lungs. Healthy people may experience sore throats, coughing, and breathing difficulties when exposed to high concentrations. SO_2 causes constriction of the airways and poses a health hazard to asthmatics, which are very sensitive to SO_2. Children often experience more respiratory tract infections when they are exposed to SO_2.

Local Air Quality

Air quality is affected by a variety of sources in the vicinity of the Powell Well No. 3 and Powell Well No. 4 locations. Motor vehicles entering the City of Fillmore, and using the nearby roadways such as State Route 126 and Old Telegraph Road, are one source. In addition, emissions from diesel powered agricultural equipment and trucks used in the areas surrounding the City are another. Finally, general aviation aircraft which frequently fly up and down the Santa Clara River Valley generate emissions that affect air quality.

To measure ambient concentrations of criteria pollutants, the VCAPCD operates six (6) air monitoring stations throughout the county (Ventura, Ojai, El Rio, Thousand Oaks, Simi Valley, Piru) along with an upper air meteorological station in Simi Valley. The monitoring station located closest to the proposed Project and most representative of air quality within the City of Fillmore is the Piru Air Monitoring Station located on Pacific Avenue, AQS ID 061110009, presently equipped with monitors for ozone and $PM_{2.5}$ (PM_{10} monitoring was discontinued in 2004). Table AQ-2 summarizes the number of days exceeding standards for the last four years (2003, 2004, 2005, 2006) in the local airshed for the ozone and particulate matter in Piru. Carbon monoxide is not an issue in the Fillmore area (Santa Clara River

Valley) and therefore is not monitored at the Piru station. Table AQ-3 lists recent historic maximums for pollutants of greatest concern in Ventura County nearest the Project site.

Table AQ-2. Ambient Air Quality Trends at Piru Monitoring Station, 2003-2006

Pollutant	2003	2004	2005	2006
Ozone				
Number of days exceeding of state 1-hour standard	27	6	7	8
Number of days exceeding federal 8-hour standard	16	4	2	5
Particulate Matter				
Number of days exceeding federal $PM_{2.5}$ 24-hour standard	0	0	0	0
Number of days exceeding federal PM_{10} 24-hour standard	0	n/a	n/a	n/a
Number of days exceeding state PM_{10} 24-hour standard	12	n/a	n/a	n/a

n/a = not available (PM10 monitoring discontinued in 2004)
Statistics based on samplers using federal reference or equivalent methods.
Source: California Air Resources Board, Historic Air Quality Database (ADAM)

Table AQ-3. Recent Historic Maximums in Project Area

Maximums	Period	Reference	ppm	µg/m^3
Nitrogen Oxides (as NO_2)	1-hour max	Simi 11/10/04	0.0710	133
	Annual	"	0.0057	11
Sulfur Dioxide (SO_2)	1-hour max	"	0.0050	13
	3-hour	"	0.0045	12
	24-hour	El Rio 2/12/03	0.0020	5
	Annual	"	0.0004	1
Carbon Monoxide (CO)	1-hour max	"	5.21	5,968
	8-hour	Simi 10/28/03	3.65	4,177
Particulates (as PM_{10})	24-hour	Piru 10/24/03	n/a	72.5
	Annual	"	n/a	14.5
Particulates (as $PM_{2.5}$)	24-hour	Piru 9/27/06	n/a	44.6
	Annual	"	n/a	8.92

n/a = not applicable
Statistics based on samplers using federal reference or equivalent methods.
Source: California Air Resources Board, Historic Air Quality Database (ADAM)

Ozone is a secondary pollutant that is not produced directly by a source, but rather is formed by a reaction between NO_x and ROC in the presence of sunlight. Reductions in ozone concentrations are dependent upon reducing emissions of these precursors. The major sources of ozone precursors in Ventura County are motor vehicles and other mobile equipment, solvent use, pesticide application, petroleum industry activities, and electric

utilities operation. The major sources of particulate matter in the Santa Clara River Valley are road dust, construction activities, mobile sources, and farming operations.

Sensitive Receptors in the Project Area

Certain population groups are considered more sensitive to air pollution and odors than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases. Sensitive land uses would include those locations where such individuals are concentrated, such as hospitals, schools, residences, and parks with active recreational uses. Due to the remote location of the Project site (10 kilometers northeast of Fillmore), there are no sensitive receptors in the Project vicinity (2 kilometer radius).

Odors

The Ventura County Air Quality Assessment Guidelines require an assessment of the potential for a proposed Project to cause a public nuisance by subjecting surrounding land uses to objectionable odors. A public nuisance is defined by APCD Rule 51 as "…such quantities of air contaminants or other material which may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or of any such persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property." The assessment includes projects that have the potential to cause odors, or projects that may subject potential sensitive receptors to nearby existing or proposed land uses that emit objectionable odors. There are no objectionable odors associated with the construction or normal operation of the proposed Project. Due to the remote location of the Project site (10 kilometers northeast of Fillmore), there are no sensitive receptors in the Project vicinity (2 kilometer radius).

Climate and Meteorology

The semi-permanent high-pressure system west of the Pacific coast strongly influences Southern California's weather, which is characterized as a Mediterranean climate. It creates sunny skies throughout the summer and influences the pathway and occurrence of low-pressure weather systems that bring rainfall to the area during October through April. As a result, wintertime temperatures in Fillmore are generally mild, while summers are warm and dry. During the day, the predominant wind direction is from the west (onshore, up valley), and at night, wind direction is from the east (offshore, down valley).

Daytime summer temperatures (degrees Fahrenheit) in Fillmore typically range from the mid 80s to upper 90s, occasionally exceeding 100. Nighttime low temperatures during the summer are typically in the mid 60s, while winter high temperatures range from the lower 60s to the mid 70s. Characteristic of Fillmore's marine-influenced inland climate, winter low temperatures are in the 40s, dropping below freezing only occasionally, which endangers citrus and avocado crops. Annual average rainfall in Fillmore is about 17 inches.

Two types of temperature inversions (warmer air on top of colder air) are created in the Ventura County area: subsidence and radiational (surface). During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm

upper layer forms a cap over the cool marine layer and prevents pollutants from dispersing upwards, causing a subsidence inversion. This type of inversion generally forms at about 1,000 to 2,000 feet and can occur throughout the year, but is most evident during summer months. The more rapid cooling of air near the ground at night, especially during winter, forms surface inversions. This type of ground-level radiation inversion is typically lower and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed. The primary air pollutant of concern during the subsidence inversions is ozone, while carbon monoxide and nitrogen oxides are of greatest concern during winter inversions.

In general, Fillmore, like other coastal-influenced cities, has relatively better air quality than the inland valleys of the South Central Coast Air Basin (SCCAB) due to ocean breezes that blow smog-forming pollutants from the coastal zone into the inland valley areas (e.g., Ojai, Simi, Conejo, Santa Clarita).

Climate Change

Recent analysis of global climate model predictions predicts that southern California will become hotter and drier (Christensen et al 2007). Annual precipitation will decrease and most areas will have fewer heavy precipitation events. Overall, snow depth will decrease as a result of delayed autumn snowfall and earlier spring snowmelt. There will be increases in extreme hot temperature events, more prolonged hot spells, an increased diurnal temperature range, and a concurrent decrease in extreme cold events.

Soil

The development of soils is governed by many factors, including climatic conditions (the amount and timing of precipitation, temperature, and wind), the parent material that the soil is derived from, topographic position (slope, elevation, and aspect), and vegetation type and cover. For evaluation of potential environmental impacts to soils, the key attributes are their erosion potential and ease of reclamation after soil disturbance. Erosion potential can vary widely among soil units within a given area, and is dependent on the particle size distribution of the soil, the slopes on which it is found, and the amount and type of vegetative cover. Soil mapping conducted by the U.S. Department of Agriculture (USDA) typically provides information about each soil type within the mapped area that can be used to evaluate the erosion potential and reclamation potential of each soil unit. These data include the slope, soil pH range, salinity, clay content, and hydrological group.

The Sespe oil field falls within the Santa Clara Hydrological Unit described in the LPF Oil and Gas Leasing FEIS (p. 3-24). Soils in this hydrological unit consist of hard sandstone, siltstone, and shale with shallow soils that are highly erodible on 30 to 80 percent slopes. Numerous thrust faults have broken the landscape and drainage patterns. Many areas have unstable slopes. The San Andreas Fault Zone lies to the east and northeast of this area.

Soils in the project area are in the Botella family, occurring on mountains with 30-60 percent slopes. The erosion potential of a soil is directly related to the slopes on which it is found. Typically, soils found on steeper slopes have a higher erosion hazard than those

found on gentler slopes. According to the USDA-NRCS (2004), all soils occurring on slopes greater than 40% have poor reclamation potential based upon their high erosion rates.

Botella soils in the project area are characterized as well drained and generally have high runoff. These soils are classified as Hydrologic Group B, which have moderate rates of infiltration and consist of moderately deep to deep, moderately well-drained to well-drained soils that have a moderately fine to coarse texture. Hydrologic groups are used to estimate surface water runoff where soils are not protected by vegetation USDA-NRCS (2004). The amount of runoff in turn influences the erosion potential of the soil. The classification of hydrologic groups A through D is based on the amount of infiltration of water that can occur through the soils. In general, the slower the rate of infiltration, the greater the amount of surface water runoff that will occur from the soil unit.

No additional disturbance to soils is anticipated from the proposed action since drilling will occur on an existing well pad and access to the site is proposed along existing roads.

Water

The Slide Pad is located in the Hopper Canyon watershed, which drains south into the Santa Clara River. The well pad is located mid-slope on a sub-ridge divided by two unnamed intermittent stream courses. No impacts to surface waters are anticipated from the proposed action since drilling activities will be confined to the existing well pad location and areas that are previously and currently disturbed.

Approximately 10,000 barrels or 420,000 gallons of water needed for the drilling process will be provided from water wells owned by Seneca Resources via existing water pipelines. A "closed loop" circulation system will be utilized for drilling which ensures that no spills impact the surface; drilling fluids will be handled in accordance with State Regional Water Quality Control Board standards for water protection.

Approximately 10,000 barrels or 420,000 gallons of water needed for the drilling process will be provided from water wells owned by Seneca Resources via existing water pipelines.

Biological Resources

A biological evaluation was prepared for this project by McCormick Biological, Inc (*Biological Reconnaissance Survey Results for the Proposed Powell Wells 3 and 4, Section 34, Township 5 North, Range 19 West, S.B.B.& M. Ventura County, California*). A copy of the October 2006 report is attached. The following Biological Resources sections are based on the McCormick Biological, Inc Report; the U.S. Fish and Wildlife Service's September 28, 2009 biological opinion; conversations between BLM biologist Amy Kuritsubo and USFWS personnel (Mark Hall, Jesse Grantham); site visits by BLM personnel (Gabe Garcia, Duane Christian, Amy Kuritsubo); and information provided by Seneca Resources (Tim Alburger, Fariba Neese).

The project is located in the lower foothills of the Transverse Range, north of the town of Fillmore, within the Los Padres National Forest boundary, and adjacent to the Hopper Mountain National Wildlife Refuge. Although the existing well pad (known as Slide Pad) is

surrounded on three sides by the Sespe Condor Sanctuary, it is not part of the Condor Sanctuary since it is private surface and private mineral estate.

The proposed well location is not vegetated, but the area immediately surrounding the development consists of non-native grassland. The nearby foothills and canyons are a mosaic of chaparral, coastal scrub, riparian and oak woodlands. The non-native grassland community is dominated by dense stands of non-native grasses such as bromes (Bromus spp.), wild oats (Avena barbata), foxtail (Hordeum spp.) and fescues (Vulpia spp.). Forbs typically present include filaree (Erodium cicutarium), fiddleneck (Amsinkia spp.) and several mustards. Canyon areas immediately adjacent to the well location include scrub oak, yucca, coffeeberry (Rhamnus sp.) and occasional grey pine.

Wildlife species likely to occur in the general project area would be similar to the adjacent Hopper Mountain National Wildlife Refuge and Los Padres National Forest. Such species probably include turkey vulture, California condor, red-tailed hawk, golden eagle, California quail, common raven, brush rabbit, desert cottontail, California ground squirrel, Botta's pocket gopher, California pocket mouse, deer mouse, dusky-footed woodrat, coyote, gray fox, black bear, American badger, striped skunk, mountain lion, bobcat, mule deer, western fence lizard, side-blotched lizard, western skink, rubber boa, racer, gopher snake, common kingsnake, garter snake and western rattlesnake. The proposed well location provides limited habitat and is probably used by only a few of these species such as side-blotched lizard, pocket gopher, and a few bird species.

The Sespe Area provides important habitat for the California condor. Condors historically roosted, foraged and nested in the area. In recognition of the area's value to the California condor, the Sespe Condor Sanctuary was established by Public Land Order 695 on January 16, 1951. On December 18, 1974, the U.S. Fish and Wildlife Service purchased 2,471 surface acres adjacent to the Sespe Condor Sanctuary and established the Hopper Mountain National Wildlife Refuge. Three years later, on September 22, 1977, the Sespe-Piru Critical Condor Habitat Area was designated under the Endangered Species Act.

Hopper Mountain National Wildlife Refuge was used by the Condor Recovery Program as a supplemental feeding and release site for condors. The release pen is located approximately 1 mile from the existing Slide Pad. Two feeding sites, Lower Pinnacles Ridge (LPR) and South Potrero, are located 1.07 and 1.72 miles, respectively, from the Slide Pad. Currently, feeding sites are activated at Hopper Mountain only when necessary to trap birds. Supplemental feeding occurs at Bittercreek Refuge and on the Wind Wolves Preserve, approximately 45 miles to the northwest.

Condors roost and nest in the vicinity of the existing Slide Pad. Two roost areas, Korford's Snags and Snag Ridge, are located 0.21 and 0.32 miles, respectively, from the existing Slide Pad. Nine nest sites (2001 – 2007) occur within 2 miles of the Slide Pad. Five nest sites are within approximately 1.5 miles of the Slide Pad. **Table 1** lists the distances between condor use areas and the Slide Pad.

Condors have been observed flying over the Slide Pad and during 2007, condors landed on at least four well pads, including the Slide Pad. In the recent past, young condors had frequented oil field areas (M. Hall, former Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2006). This behavior was not observed for the 2 years leading

up to 2007. A few months into 2007, condors began to frequent oil field areas again. Four well pads have been identified as the main locations the condors are landing at (J. Grantham, California Condor Recovery Coordinator, R. Posey, Supervisory Wildlife Biologist, pers. comm. 2007). One of these well pads is the Slide Pad, the site of this proposed action.

Table 1 Proximity of condor use areas to Powell 3 & 4 well pad (Slide Pad).

RELEASE PEN, ROOSTS, FEEDING SITES	
	Distance to Slide Pad (miles)
Release Pen	1
Roost – Koford's snags	0.21
Roost - Snag Ridge	0.32
Feeding Site - LPR	1.07
Feeding Site - South Potrero	1.72

Table 1 (continued) Proximity of condor use areas to Powell 3 & 4 well pad (Slide Pad)

NESTS	
Nest Year	Distance to Slide Pad (miles)
2001	1.74
2002	1.31
2002	1.74
2002	2.63
2003	1.06
2004	0.73
2004	1.75
2004	6.99
2006	1.84
2007	0.90
2007	1.55
2007	4.91
2007	6.39
2008	0.90
2008	1.55
2008	1.62
2008	2.57
2008	2.76

In 2007 field observers documented 7 condor landings at oil pad sites in the Hopper mountain oil fields. Other landings may have occurred, but observers were not present to verify the landings. GPS telemetry points for certain condors show perched behavior at oil pads. In 2008, field observers documented no condor landings at oil pad sites. Condors did land at pull outs on the Dough Flat Road and Oat Mountain Road.

Critical Habitat. Critical habitat for the California condors was designated on 22 September 1977 and includes the Sespe-Piru Condor Area. The Sespe-Piru Condor Area includes an area of land, water, and airspace to an elevation of not less than 3,000 feet above the terrain, within certain areas of Ventura and Los Angeles Counties. The Sespe-Piru Condor Area includes the Sespe Condor Sanctuary as delineated by Public Land Order 695 (January 16,1951). Public Land Order 695 withdrew all *public lands* within T. 5N., R. 19W., Sections 1-6, 9-16, 22-27, 34, 35, 36 and T. 5 N., R. 20W., Sections 1-24, 26-30, 33, 34, and 35 SBB&M and established the Sespe Condor Sanctuary. The Forest Service surface that is directly above the lease is part of the Sespe Condor Sanctuary and is critical condor habitat.

The existing well pad (Slide Pad) is on private land and is not part of the Sespe Condor Sanctuary; therefore, it is not critical habitat.

Cultural Resources

The Spanish on an exploration trip up the coast of California were the first non-Indians to enter the central coast region during the mid-sixteenth century expedition lead by Juan Rodriguez Cabrillo (Portuguese explorer) sailing under the Spanish flag. Spain's interest in Alta California as a new place for expansion also became evident with increased military expeditions. Soon Spanish expeditions involved both military and religious goals. Captain Gaspar de Portola's land expedition in 1769 traveling north from San Diego to Monterey documented their encounter with the Ventureno Chumash at the rancheria of Santa Clara which was located near the present day city of Fillmore. The mission system founded by the Spanish with the goal of spreading Christianity to Native Americans took place from 1772 to 1834 when 21 missions were established. By the mid-1800s, the Spanish had lost much of their control over this area to Mexico (Grant, 1978).

The Chumash rancheria name sek'spe persists in the Ventura area to this day as a place name known as Sespe. The Ventureno branch of Chumash was well established along the Santa Clara and Ventura rivers as well as the Calleguas Creek vicinity (Grant, 1978). Their neighbors to the east were the Tataviam and the Gabrielino to the southeast (King & Blackburn, 1978). The Ventureno's covered mat houses resembled the rectangular dwellings of Tataviam. Most of the native settlements away from the ocean were not large (Grant, 1978).

Their subsistence practices consisted of a seasonal round of hunting, gathering, and fishing. Some primary plant foods in their diet were acorns, manzanita berries, soap plant bulb, and chia sage; while hunted animals consisted of deer, quail, rabbits, squirrels and fish. Some examples of goods manufactured and utilized among the Chumash included flaked stone tools, intricate basketry, tanned animal hides, ground stone tools, and the bow and arrow which was introduced about 1,500 years before present (Grant, 1978). Some prehistoric site types which typically occur in this cultural region include bedrock mortar and milling stone food processing stations, lithic scatters, village sites, and rock art paintings.

Agency field and record search investigations revealed no historic or prehistoric resources, National Register of Historic Places properties, or Native Americans traditional cultural properties in the project area and vicinity. Details of the investigations are documented in BLM cultural resource inventory report CA-160-C/V-476.

BLM provided correspondence pertinent to the proposed undertaking to several Native American councils, individuals, and tribal representatives as listed below in Section VII (Consultation and Coordination). As a result of this consultation, BLM received one response from the Santa Ynez Band of Mission Indians (Tribal Elders Council).

Specifically, the Tribal Elders Council was interested in getting copies of the archaeological investigations and any response we may have received from the Native American Heritage Commission. The Council had no record of the project area being spiritual or having

ceremonial values to their people. They asked the BLM to consider having the presence of a Native American monitor during time of ground disturbance.

Socio-Economic

The current oil and gas leases in the Sespe oil field produce approximately 390,000 barrels of oil per year and 940 million cubic feet of gas per day. The market value of these products is approximately $32 million per year. These leases also provide approximately 25 jobs for the local economy.

Visual Resources

This proposed project is located in a Visual Resource Management Class IV area. This classification provides for major modifications of the characteristic landscape. The level of change in the basic landscape elements due to management activities is high. Such activities may dominate the landscape and be the major focus of viewer attention.

Wilderness

The 219,700-acre Sespe Wilderness, created by the Los Padres Range and River Protection Act of 1992, is located immediately to the north and east of the proposed drill sites.

V. Environmental Consequences of the Proposed Action

Resources in addition to those discussed below were considered as a part of the scoping process. Those resources that were clearly unaffected by the proposed action, or were not present in the project area, were dropped from further consideration. The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order, and must be considered in all environmental assessments. Those elements that are affected are discussed below in greater detail.

Critical Element	Affected		Critical Element	Affected	
	Yes	No		Yes	No
Air Quality		X	Wastes, Hazards/Solids		X
ACECs		X	Water Quality		X
Cultural Resources		X	Wetlands/Riparian		X
Floodplains		X	Wild & Scenic Rivers		X
NativeAmerican Concerns		X	Wilderness		X
T&E Species	X		Weeds		X
Environmental Justice		X			

Air, Soil, and Water

Impacts to Air Quality

A preliminary screening impact analysis is included here based on the planned execution of the proposed project.

Methodology

The analysis of the proposed project's air quality impacts is based on equipment specifications and planning estimates of air emissions during the two construction phases of the project, i.e., staging and drilling of wells Powell No 3. and Powell No. 4. The wells would be constructed in 28 to 30 days each, comprising 4 to 6 days staging (i.e., equipment transport and setup/takedown) and 24 days drilling, respectively. The permanent operational emissions associated with the project would be fugitive ROC emissions from the two completed well heads which would essentially be *de minimis*. Preliminary estimated project emissions from drilling activities are summarized in Tables AQ-4 and AQ-5, and operational emissions are summarized in Table AQ-6.

Table AQ-4. Preliminary Estimated Project Emissions for Drilling Powell No. 3

Powell No. 3	Vehicles		Drilling		Activity Total	
	tons	lb/day	tons	lb/day	tons	lb/day
Oxides of Nitrogen (as NO_2)	0.04	3.0	5.7	472	5.7	475
Hydrocarbons (ROC as CH_4)	0.00	0.1	0.1	11	0.1	11
Carbon Monoxide (CO)	0.02	1.4	0.8	66	0.8	67
Particulates (as PM_{10})	0.00	0.04	0.1	9	0.1	9
Sulfur Dioxide (SO_2)	0.00	0.01	0.0	0.5	0.0	0.5
Carbon Dioxide (GHG – CO_2)	9.03	645	595	49,591	604	50,236
Nitrous Oxide (GHG - N_2O)	0.00	0.002	0.01	1.23	0.01	1.23
Methane (GHG - CH_4)	0.00	0.002	0.03	2.83	0.03	2.83

Table AQ-5. Preliminary Estimated Project Emissions for Drilling Powell No. 4

Powell No. 4	Vehicles		Drilling		Activity Total	
	tons	lb/day	tons	lb/day	tons	lb/day
Oxides of Nitrogen (as NO_2)	0.05	3.1	5.7	472	5.7	475
Hydrocarbons (ROC as CH_4)	0.00	0.1	0.1	11	0.1	11

Carbon Monoxide (CO)	0.02	1.4	0.8	66	0.8	67
Particulates (as PM_{10})	0.00	0.04	0.1	9	0.1	9
Sulfur Dioxide (SO_2)	0.00	0.01	0.0	0.5	0.0	0.5
Carbon Dioxide (GHG - CO_2)	9.86	657	595	49,591	605	50,248
Nitrous Oxide (GHG - N_2O)	0.00	0.002	0.01	1.23	0.01	1.23
Methane (GHG - CH_4)	0.00	0.002	0.03	2.83	0.03	2.83

Table AQ-6. Permanent Operational Emissions

Operational Emissions	Wellheads	Emission Factor	Emissions	
	quantity	lb/day-wellhead	lb/day	tons/yr
Hydrocarbons (ROC as CH_4)	2	2.0	4.0	0.73

Ref: VCAPCD 2007 (permit engineering)

Project Impacts

The CEQA significance criteria in Ventura County are 25 pounds per day NO_X or ROC, and 5 pounds per day NO_X or ROC in the Ojai Valley area (VCAPCD, 2003). Since NO_X emissions from drilling exceed the 25 pound per day threshold, dispersion modeling must be performed to determine whether state or federal ambient air quality standards would be exceeded solely due to project activities against historic maximum background levels. If a project does not solely cause a standard to be exceeded, then there is less than significant impact from the project.

The preliminary screening air quality impacts are shown in Table AQ-7. USEPA's SCREEN3 Version 96043 was used to model the impacts. A screening risk evaluation for diesel particulate matter (DPM) is shown in Table AQ-8. The results of the analysis show that no exceedence of ambient air quality standards in the project vicinity would result solely from project activities (i.e., drilling equipment emissions).

For emissions below the applicable significance threshold, no further analysis is required. This applies to both temporary drilling and permanent operational ROC emissions from the project, which are each below the 25 pound per day significance threshold.

These activities may slightly increase amounts of dust and mechanical emissions but no significant cumulative impacts to air quality would be expected as a result of the implementation of the proposed action. All emissions sources will be permitted, inspected, and regulated by the Ventura County Air Pollution Control District. Mitigation measures to limit the impacts of the construction operation emissions would consist of 1) use of California ultra-low sulfur diesel fuel exclusively in all diesel-powered equipment and vehicles, and 2) application of adequate water to road and grading surfaces for control generation of fugitive dust in the construction zone.

Table AQ-7. Drilling Activity Preliminary Estimated Air Quality Impacts

Criteria Pollutant	Averaging Period	Modeled Concentration	Background Concentration	Total Concentration	California Standard	Federal Standard
		ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
Nitrogen Oxides (as NO_2)	1-hour	141.1	133	274	338	---
	Annual	0.7	11	12	56	100
Sulfur Dioxide (SO_2)	1-hour	0.1	13	13	654	---
	3-hour	0.1	12	12	---	1308
	24-hour	0.1	5	5	105	366
	Annual	0.0	1	1	---	78
Carbon Monoxide (CO)	1-hour	19.6	5,968	5,988	22,890	40,057
	8-hour	13.7	4,177	4,191	10,300	10,300
Particulates (as PM_{10})	24-hour	1.1	72.5	73.6	50	150
	Annual	0.0	14.5	14.5	20	---
Particulates (as $PM_{2.5}$)	24-hour	1.1	44.6	45.7	---	35
	Annual	0.0	8.9	8.9	12	15

Note: Background concentration reference VCAPCD Simi, El Rio, and Piru monitoring stations 2003-06. High PM values measured during October 2003 brushfire episode.

Table AQ-8. Diesel Particulate Preliminary Screening Health Risk Assessment

Project Phase	Annual ug/m^3	URV (ug/m^3)$^{-1}$	Activity days	Annual Correction	Cancer Risk
Drilling	0.01	3.00E-04	24	0.0009	3.99E-09

Note: Cancer risk less than 1 in 1,000,000 (1E-6) is not significant

Climate Change

The amount of greenhouse gases (CH_4 and CO_2) generated by the proposed drilling of two oil wells over a two to 2-1/2 month period is expected to be minimal.(Refer to Tables AQ-4, AQ-5, and AQ-6 above). These GHG emissions are not anticipated to directly or indirectly influence global climate change.

Impacts to soil

Impacts to soil are not expected since the wells will be drilled on a previously constructed (existing) well pad with 15 existing wells. Soils in the project area occur on slopes ranging from 30 to 60 percent. According to the USDA-NRCS (2004), all soils occurring on slopes greater than 40% have poor reclamation potential based upon their high erosion rates.

Although slopes in the project area may affect reclamation, the proposed action does not include reclamation of the Slide Pad at this time, as additional existing producing wells occur here.

Impacts to water

While the closest perennial drainage is Tar Creek, the Slide Pad is not located within this watershed. The pad is located in the Hopper Canyon drainage which is not a perennial water course. Standard drilling stipulations include measures designed to protect groundwater. These measures are included in the APD as project design features and include the following:

- Water is transported to the drilling site from existing water wells via an existing water pipeline, both owned and operated by Seneca Resources. The integrity of the pipeline is regularly monitored by Seneca Resources field personnel. The short-term need for water during the drilling process is not expected to impact groundwater resources. Therefore, groundwater tables will not be affected by this project, and no impacts are expected due to the actual transport of water. Drilling muds are collected and recirculated through mud tanks on site, which ensures a "closed loop" circulation system with no spill impacts to the surface. In addition, the spent drilling muds are stored in onsite tanks and then transported off site for final disposal at an approved facility.
- Drilling cuttings are mixed with concrete on site for recycling uses. This process has been approved by the Regional Water Quality Control Board in relation to runoff impacts to the surrounding environment.

Biological Resources

The existing pad is not vegetated and no additional work space is required; therefore, there would be no effects to vegetation.

Animals can be crushed by equipment and vehicles during well drilling activities and burrows can be collapsed during site preparation. The additional human activity associated with well drilling may temporarily displace animals from the immediate area. Conversely, nighttime activity and light may attract other species. The existing pad provides limited habitat, supports few wildlife species and individuals, and currently receives regular human visitation and activity associated with the existing wells. The actual number of individual wildlife potentially impacted is expected to be very low.

Potential Effects to the California condor

Sespe Condor Sanctuary. Although the targeted federal mineral estate for the Powell Wells 3 and 4 is part of the Sespe Condor Sanctuary, there will be no surface disturbance to the Sespe Condor Sanctuary. The existing well pad is located just outside the boundary of the Sespe Condor Sanctuary, and it is on private surface. The Sespe Condor Sanctuary was established on January 16, 1951 by Public Land Order 695 (PLO 695). PLO 695 withdrew public land within the Condor Sanctuary boundary from appropriation under the public land laws, and reserved the area as a condor sanctuary under the jurisdiction of the Forest Service. Certain sections, including section 34, were prohibited from surface use or

invasion, and operations in all areas within the sanctuary were to remain ½ mile away from any nest that had been active within 3 years. The proposed project complies with these requirements. By placing the new wells on an existing pad, there will be no new surface use or invasion. The nearest nesting location was a 2004 site that was 0.73 miles from the Slide Pad. Operations on the Slide Pad currently meet the ½ mile restriction.

Critical Habitat. Direct effects to critical habitat are not expected since the well pad site is not critical habitat. While the potential exists for accidental leaking or spraying of oil or other material from the well or equipment to indirectly affect adjacent critical habitat, the material would have to travel or spray several hundred feet and breech the berm and hillside that separates the well pad from critical habitat. This is not an impossible occurrence, but it is unlikely.

California condor. Nest, roost and perch sites and/or feeding sites and foraging habitat used by California condors could be affected by road, pipeline, well pad construction, or other oilfield related activities. Project-related noise, such as from detonations, gas compressors, diesel-powered electric generators, loud vehicles, road grading equipment or low-flying helicopters, could cause adult birds to repeatedly flush from, or eventually abandon a feeding site, an active nest, or prevent them from choosing otherwise suitable habitat as a nest site. General human activity associated with oil and gas extraction could discourage condor use of habitat that may otherwise be suitable for nesting, perching, roosting, or foraging. Seneca has implemented or proposed several measures to avoid or minimize disturbance and displacement of condors due to oilfield activities, which are included as design features for the proposed APDs. These include prohibiting the use of firearms, limiting the areas of disturbance to the existing pads, gate closures to restrict public access, and the construction of fence barriers to deter condors from frequenting the pad sites. In addition, well drilling operations will be completed by October 1 to minimize effects to fledging condor chicks.

Garbage and debris could be left out by oil and gas workers while conducting project activities. This could include small items such as bottle caps, nails, screws, nuts, washers, rags, electrical components, and wire. Condors have been known to ingest items such as these. Sixteen of the recent California condor chicks hatched in the wild have been determined to have micro-trash in their digestive tracks, eight have died, two were removed from the wild for recuperation, and two had emergency surgery, and were returned to the wild. While the threat of micro-trash remains a concern, Seneca has implemented numerous measures to prevent the accumulation of micro-trash on the well pads, including daily surveys and clearing of pads, removal of public trash and education of workers. For example, beginning in 2007, Seneca has implemented a daily and weekly micro-trash removal program. Seneca has had the field operators check wells pads more closely for micro-trash during the daily rounds. In addition, at least once per week, two laborers make the rounds of all the upper wells pad locations, including the four pads used by condors, to pick up any trash that has been left by the public over the weekend. If Seneca is successful in clearing and cleaning the pads, micro-trash that formerly had an adverse effect on California condors would be eliminated from the pad areas.

Long sections of loosely coiled wire can entangle curious condors that might investigate work sites. Toxic fluids could also be left out in the open, accessible to condors. If crude

oil were to leak from a well or ruptured pipeline and form a pool, a California condors could land in it and become oiled or entrapped. To address these potential impacts, Seneca has agreed to keep all equipment and work-related materials (including loose wires, open containers or other supplies or materials) in closed containers either in the work area or placed inside vehicles. Loose items (e.g. rags, hose, etc.) will be stored within closed containers or enclosed in vehicles.

Aircraft used to access remote locations where oil and gas exploration might occur could collide with flying condors. California condors might also collide with exposed power lines erected to deliver power to well pads to run pumps, compressors and generators. Power lines that span canyons or are located along ridge lines would be the most dangerous for flying condors. Collision with power lines has been one of the leading causes of recent California condor mortality, especially for young birds. California condors can also be electrocuted by power lines if the lines are spaced too closely. Additionally, curious condors may be drawn to new structures encountered within their home range. This could include oil and gas facilities, such as oil derricks, tank farms, and storage sheds. Condors that perch on human made structures and become habituated to human activity lose their fear of humans and are less likely to avoid human actions that could result in their injury or death. To address these potential impacts, Seneca will obtain approval from the FWS prior to the use of any aircraft in the drilling, operation or monitoring of the wells. No new power lines are proposed. Perching deterrents have been installed on the walking beams of all existing wells on the Slide Pad and will be installed on the two new wells.

The ingestion of toxic liquids, or entrapment in dangerous liquids, can be harmful to condors. Vehicles and equipment that use ethylene glycol based liquids may leak and form puddles from which condors may drink or bathe. To address these potential impacts Seneca has agreed to avoid ethylene glycol based anti-freeze or other ethylene glycol based liquid substances where practical. Propylene glycol based antifreeze will be encouraged. Equipment or vehicles that use ethylene glycol based anti-freeze or other ethylene glycol based liquid substances will be inspected daily for leaks. Leaks will be repaired before the vehicle is allowed back into the Sespe area. Standing fluid will be remediated without delay. Barriers, such as hardware cloth, have been installed around well cellars and on secondary containment pans on the Slide Pad to prevent condor access.

The U.S. Fish and Wildlife Service concluded in their September 28, 2009 Biological Opinion that approval of the two wells was not likely to jeopardize the continued existence of the California condor, and was not likely to destroy or adversely modify critical habitat.

Cultural Resources

The project as proposed will not impact any known historic or prehistoric resources, National Register of Historic Places properties, or traditional cultural properties and places important to the Native Americans. The project will not impede access by practitioners to traditional religious sites.

The existing deep cut and fill in the mountainside slope by mechanized equipment when the oil well pad was originally excavated in years past precludes the need to culturally monitor the installation of the Powell Wells 3 and 4. Archaeological field investigations conducted

by BLM and documented in inventory report CA-160-C/V-476, reveal no cultural resources to be present within or adjacent to the proposed oil well pads.

Socio-Economic

The proposed action will allow the existing leases in the Sespe oil field to continue oil and gas production at or above their current levels. This benefits the local economy not only in monetary receipts and jobs, but also by augmenting the increasing national oil and gas supply.

Visual Resources

The wells would be drilled from an existing well pad on private property located in a VRM Class IV area. Due to the already high level of oil and gas development that dominates the landscape in this VRM Class IV area, the wells proposed would have an undetectable increase in development.

Wilderness

The Sespe Wilderness is located immediately to the north and east of the proposed drill sites. These two wells will be drilled from a location that is adjacent to the wilderness. The drilling operations will take approximately two months to complete. For the duration of drilling an oil well drilling rig will be visible at viewpoints from the surrounding wilderness. There will also be noise associated with the drilling of these two wells. The noise will be isolated to the immediate area surrounding the proposed well site. The impacts to wilderness from the proposed action are temporary and therefore would not degrade the wilderness or wilderness characteristics.

Cumulative Impacts

Biological Resources including the California condor

Cumulative effects to Biological Resources, including the California condor, were analyzed on pages 394-409 of the *Final Environmental Impact Statement, Volume 1, Land Management Plans, Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest* (LUP EIS) and are incorporated by reference into this EA. Population growth and increased urbanization is expected to result in degradation, loss and fragmentation of habitat. Management of Forest Lands with use restrictions, project design criteria, Best Management Practices and monitoring may help to limit the intensity and slow the loss within the region. The EIS concluded that most species and their associated habitats will remain within the expected ranges of variability on the national forests. Species at risk with a majority of their habitat on private lands would most likely decline substantially. The California condor likely falls into this last category.

Cumulative effects were also analyzed on pages 4-57 and 4-58 of the *Final Environmental Impact Statement for Oil and Gas Leasing, Los Padres National Forest* (O&G EIS) and are incorporated by reference into this EA. The EIS concluded that cumulative impacts may pose significant barriers to preservation and recovery of listed species. Past and current

activities analyzed include oil and gas development, grazing and recreational development, agricultural development, urban and residential development, development of roads, and development of pipelines and power-lines corridors.

The effect of the two proposed wells, when taken together with the effects of other actions in the analysis area, will not have a significant cumulative effect on biological resources beyond those already analyzed in the LUP EIS and O&G EIS. The current pattern of development is to cluster several wells on a single pad and to place new wells on existing pads. At least one new well has been drilled on private lands and it is possible that other new wells will be drilled in the area. Any new wells are likely to be placed on existing pads alongside existing wells due to the topography, the Sespe Condor Sanctuary restrictions and the need to avoid impacts to condor foraging habitat. BLM is not aware of any new technology or field discovery that would suggest a substantial increase in the rate of well drilling on existing leases.

Cultural Resources

There will be no effect or cumulative impacts to cultural or traditional properties from the proposed action to develop two additional oil wells on an already existing large well pad which will be accessed via existing roads. Any future wells that may be developed would be subject to archaeological investigations to ensure avoidance or mitigation of cultural resources should sites be associated with potential wells in the vicinity. Recent archaeological record search revealed no known cultural resources to be present within one mile radius of the proposed action.

Upon consideration of the preceding assessment and a review of other activities in the area, the proposed action is not expected to have any significant cumulative effects beyond those already analyzed in the LUP EIS and O&G EIS.

VI. Environmental Consequences of the No Action

Under the No Action Alternative, the BLM would not authorize the drilling of the Powell Wells No. 3 and No. 4 and there would be no changes to the current conditions and trends of air quality, soil, water, biological or cultural resources, visual resources, or wilderness or wilderness characteristics. However, as mentioned in III. Description of the Proposed Action and Alternatives, the No Action Alternative would conflict with the lessee's right to drill for oil and gas under lease CARI 2298.

VII. Consultation and Coordination

Federal and Tribal Consultation

Mark Hall, U.S. Fish and Wildlife Service, Hopper Mountain National Wildlife Refuge

Jesse Grantham, U.S. Fish and Wildlife Service, Condor Recovery Program.

Adelina Alva-Padilla, Chairwomen
Tribal Elders Council Governing Board
Santa Ynez Band of Mission Indians

Lei Lynn Odom, Chumash Elder
Oceano, CA

Beverly Folkes

Chumash Representative

Thousand Oaks, CA

Julie Tumamait-Stenslie
Chumash Representative

Ojai, CA

Elders Chairperson
Tribal Elders Council Governing Board
Santa Ynez Band of Mission Indians
P.O. Box 365
Santa Ynez, CA 93460

Irvin Fox-Fernandez
USDA - Forest Service
Ojai Ranger District

1190 East Ojai Avenue
Ojai, CA 93023

U.S. Fish and Wildlife Service
P.O. Box 5839
Ventura, CA 93005
Attn: Jesse Grantham

Public Involvement

Los Padres Forest Watch
P.O. Box 831
Santa Barbara, CA 93102
Attn: Jeff Kuyper

On October 9, 2006, Jeff Kuyper of Los Padres Forest Watch requested a copy of the APD, Surface agreement, Lease Stipulations and Attachments, and a copy of the EA for this project. On October 13, 2006, BLM sent Mr. Kuyper a copy of the APD, Lease Stipulations, and Surface Agreement. On April 24, 2007, he was mailed a copy of the proposed EA for this project.

On November 2, 2006, The Tribal Elders Council Governing Board of the Santa Ynez Band of Mission Indians requested addition information on cultural sites in the area. BLM responded to this request on January 18, 2007 with a letter referencing the survey performed at the proposed well sites. On April 24, 2007, they were mailed a copy of the proposed EA for this project.

Mailing List

Los Padres Forest Watch
P.O. Box 831
Santa Barbara, CA 93102
Attn: Jeff Kuyper

USDA- Forest Service
1190 East Ojai Avenue
Ojai, CA 93023
Attn: Irvin Fox-Ferdandez

U.S. Fish and Wildlife Service
P.O. Box 5839
Ventura, CA 93005
Attn: Jesse Grantham

Elders Chairperson
Tribal Elders Council Governing Board
Santa Ynez Band of Mission Indians
P.O. Box 365
Santa Ynez, CA 93460

List of Preparers

Nora DeDios, Project Lead

Lisa Ashley, Natural Resource Specialist

Peter DeWitt, Outdoor Recreation Planner

Denis Kearns, Botanist

Amy Kuritsubo, Wildlife Biologist

Jeff Prude, Petroleum Engineer

Larry Saslaw, Wildlife Biologist

Tammy Whitley, Archaeologist

References

Grant, Campbell, *Chumash: Introduction* and *Eastern Coastal Chumash*. In Handbook of North American Indians, Vol. 8, ed. by R.F. Heizer, Washington, D.C., Smithsonian Institution.

King, Chester and Thomas Blackburn, *Tataviam*. In Handbook of North American Indians, Vol. 8, ed. by R.F. Heizer, Washington, D.C., Smithsonian Institution.

http://www.arb.ca.gov/desig/desig.htm

http://www.epa.gov/region09/air/sips/index.html

http://soildatamart.nrcs.usda.gov/ (Accessed April 16, 2010)

USDA Forest Service. 2005a. Final Environmental Impact Statement for Oil and Gas Leasing, Los Padres National Forest, July 2005. (Retrieved 12/4/06) Available: http://www.fs.fed.us/r5/lospadres/projects/oil-gas/

USDA Forest Service. 2005b. Final Environmental Impact Statement, Volumes 1 & 2, Land Management Plans, Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest, September 2005. Available: http://www.fs.fed.us/r5/lospadres/projects/oil-gas/

Ventura County Air Quality Assessment Guidelines (2003)

http://www.vcapcd.org

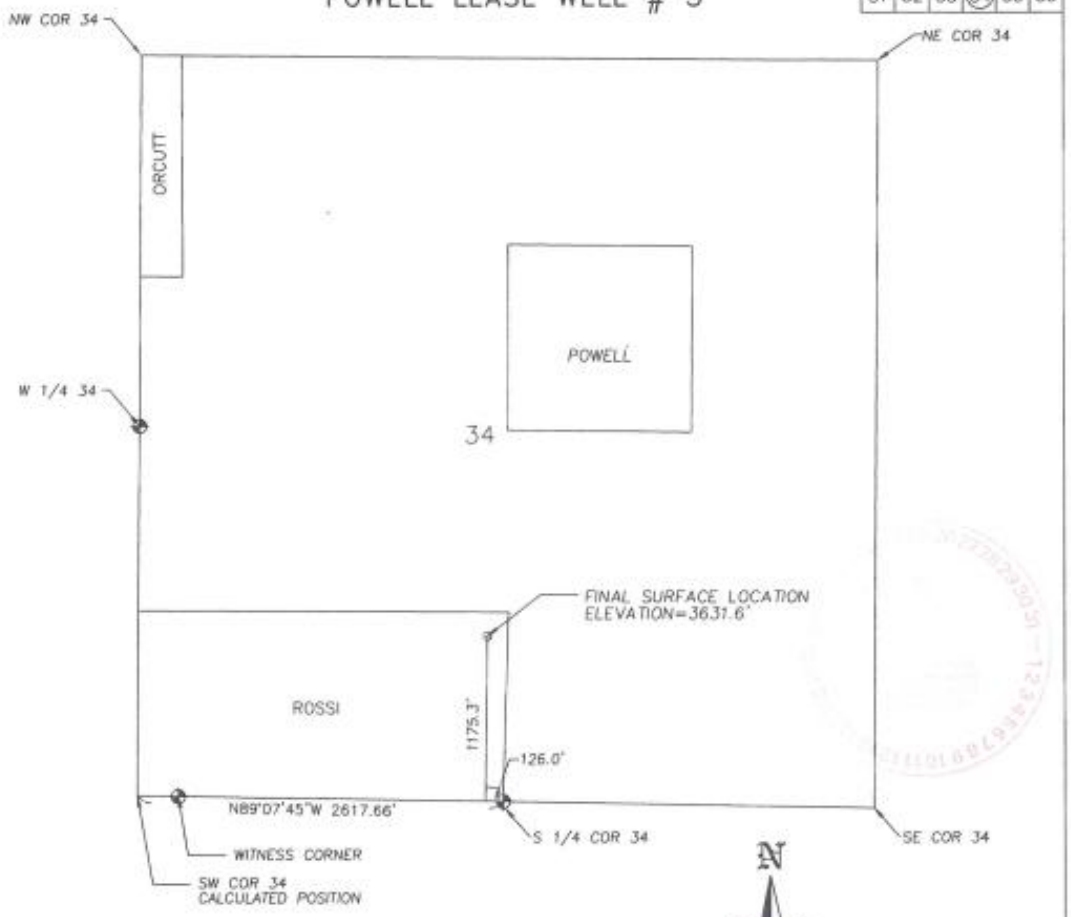
McCormick Biological, Inc (*Biological Reconnaissance Survey Results for the Proposed Powell Wells 3 and 4, Section 34, Township 5 North, Range 19 West, S.B.B.& M. Ventura County, California*)

WELL LOCATION PLAT

SECTION 34, T5N, R19W, SBM

FINAL WELL LOCATION
POWELL LEASE WELL # 3

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	(34)	35	36



FINAL COORDINATES OF WELL# 3

STATE PLANE:	LAT-LONG:
N 354499.0	LAT. +34.471095534
E 1741474.8	LONG. -118.857750733

BENCHMARK: CP-1 CPS GRID
ELEV.: 3631.02' LAT. +34.471166322
LONG. -118.858427689

PREPARED BY:
ADVANCED Geomatics ENGINEERING, INC.
1901 Mineral Ct., Suite B Bakersfield, CA 93308
(661) 665-6100 FAX (661) 395-6111

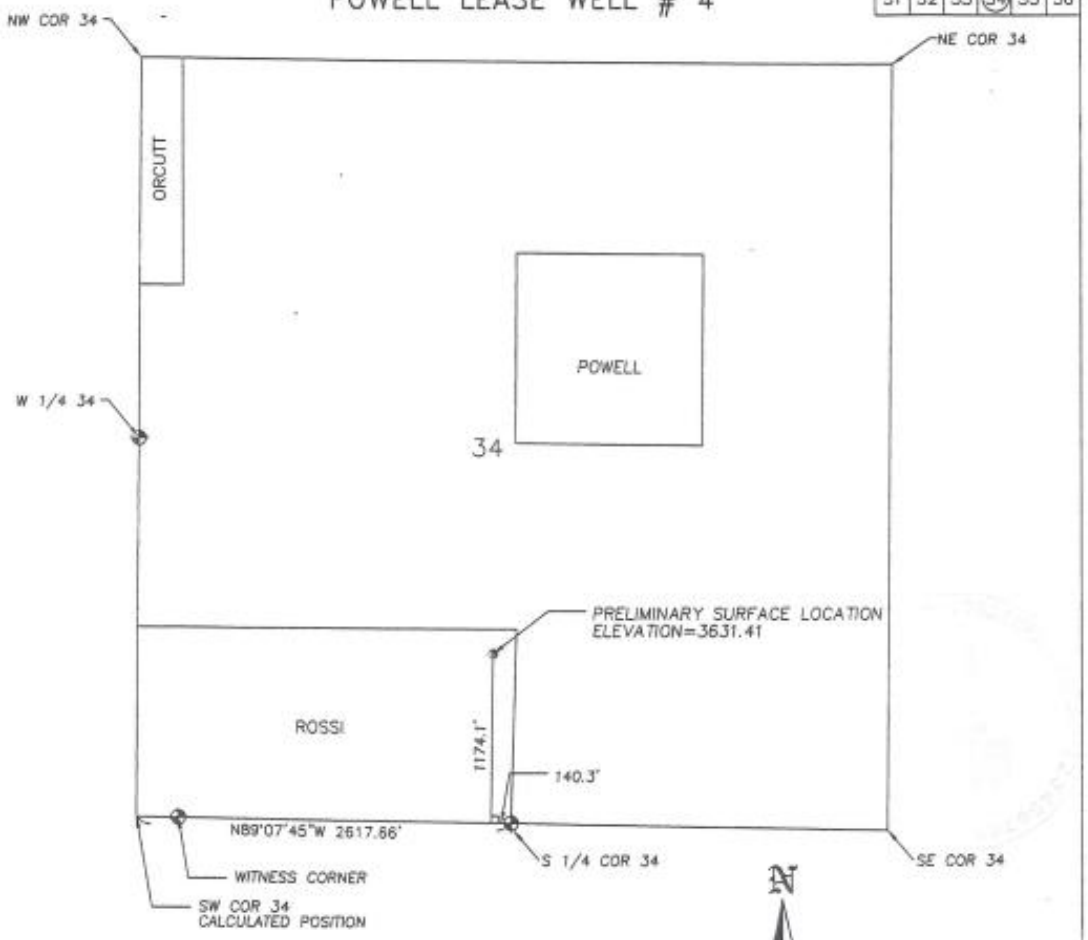
COMPANY: SENECA RESOURCES CORP.		WELL # 3
LOCATION: POWELL LEASE SESPE MOUNTAIN		AFE #: DB251
AGE JOB #: 06-152	CHECKED: CDH	DATE: 09/13/2006
STAKED BY: DF/JS	DRAWN BY: BW	PAGE 1 OF 1

WELL LOCATION PLAT

SECTION 34, T5N, R19W, SBM

PRELIMINARY WELL LOCATION
POWELL LEASE WELL # 4

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	(34)	35	36



PRELIMINARY COORDINATES OF WELL# 4

STATE PLANE:	LAT-LONG:
N 354498.0	LAT. +34.471092489
E 1741460.5	LONG. -118.857798204

BENCHMARK: CP-1 CPS GRID
ELEV.: 3631.02' LAT. +34.471166322
LONG. -118.858427689

PREPARED BY:
ADVANCED Geomatics ENGINEERING, INC.
1901 Mineral Ct., Suite B Bakersfield, CA 93308
(661) 393-9100 FAX (661) 393-9111

COMPANY: SENECA RESOURCES CORP.		WELL # 4
LOCATION: POWELL LEASE SESPE MOUNTAIN		AFE #: DB251
AGE JOB #: 06-152	CHECKED: LJC	DATE: 08-17-06
STAKED BY: DF/JS	DRAWN BY: CDH	PAGE 1 OF 1